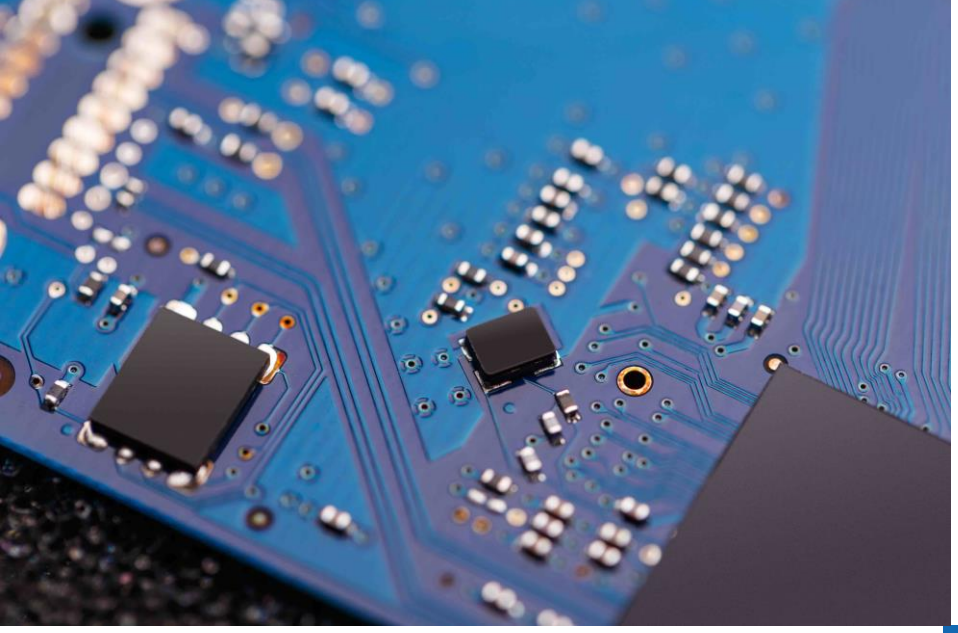
LA-UR-18-27304
Approved for public release; distribution is unlimited.

Title: An INTERNET OF THINGS Commercial Opportunity

Author(s): Mudunuru, Maruti Kumar
Cernicek, Mary Beth

Intended for: Web

Issued: 2018-08-01



Los Alamos NATIONAL LABORATORY EST. 1943

An

INTERNET OF THINGS

Commercial Opportunity

LAUR #

REQUEST FOR **INFORMATION**

Computing at the Edge – IoGET

Intelligent Processing at the Sensor to Enhance Data Efficiency

Currently environmental sensing is manual, expensive, time-consuming, and requires high-power. IoGET is being developed to monitor earth and environmental processes via fast and automated data processing at sensor nodes. IoGET transforms the difficult, complicated, and manual practice of data collection into an automated process.

AREAS FOR **PARTNERSHIP**

The Los Alamos team has identified areas for partnership and/or exclusive or nonexclusive, commercial licensing to advance the IoGET technology. Los Alamos has initiated work on these topics. Collaboration with a commercialization partner could enhance functionality by:

- Sharing large data sets for testing of performance of algorithms.
- Providing access to various sensor interfaces used in the field to adapt and test algorithms.
- Enabling a field test on oil wells in operation.

Please submit a written response to the contact below if your organization would like to pursue the technology in partnership with Los Alamos by **September 7, 2018**.

CONTACT:

Don Hickmott

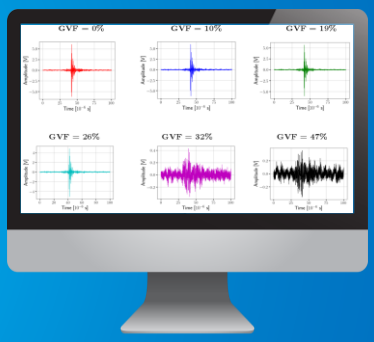
505.667.8753

dhickmott@lanl.gov

Mail Stop C333
P.O. Box 1665
Los Alamos, NM
87545

www.lanl.gov/
feynmancenter

FCI
Richard P. Feynman
Center for Innovation
at Los Alamos National Laboratory



WHY WE ARE BUILDING IoGET

Every year 30,000 oil and gas wells are drilled across the United States and over 500,000 wells remain in production. A loss of ~ $500/hour is incurred if a well is not operational. Sensors at wellheads monitor oil extraction, gas & water content, and much more. Obtaining actionable information from large data streams to prevent well shut-downs is a major challenge.

WHAT'S BEHIND OUR TECHNOLOGY

Our IoGET software is using recent advancements in machine learning and signal processing to condense voluminous amounts of sensor data in real-time. The data is compressed by a factor of ~ 100, which improves transfer of actionable information to end-users.

OUR COMPETITIVE ADVANTAGES

- Low cost
- Fast deployment into the field
- A portable and mobile solution
- Much lower costs compared to today's edge computing solutions in the field

WHAT'S UNIQUE ABOUT OUR SOLUTION

IoGET provides automated and smart sensing in near real-time by combining low-cost and energy-efficient sensors, smart computing devices (such as Raspberry Pi), and LANS' machine learning software to reduce large volumes of sensor data (terabytes) into actionable information (kilobytes).

OUR TECHNOLOGY STATUS

The IoGET software has undergone successful testing in a lab-setting to identify gas content in oil-water-gas mixtures. The next round of testing will be on commercial oil & gas, seismic, and/or environmental datasets.

PUBLICATIONS AND INTELLECTUAL PROPERTY

Invention and copyright disclosures have been submitted.